

WHAT IS CLAIMED IS:

1. A spark plug comprising:

a main metal fitting having a cylindrical structure;

5 an insulator disposed inside the cylindrical main metal fitting and having an inner hollow structure;

a center electrode fitted in the inner hollow portion of the insulator in a manner that a front end portion of the center electrode projects outward over one end of the insulator;

10 and

a grounding electrode mounted to the main metal fitting and having one end portion opposing to the front end portion of the center electrode with a discharge gap therebetween,

15 wherein said front end portion of the center electrode includes a conical portion having a tapered surface and a columnar portion formed to a top end portion of the conical portion, said columnar portion having a diameter in a range of 0.4 mm to 0.8 mm and said tapered surface of the conical portion having a taper angle of less than  $80^{\circ}$  .

20 2. A spark plug according to claim 1, wherein said taper angle is less than  $60^{\circ}$  .

25 3. A spark plug according to claim 1, wherein said taper angle is more than  $20^{\circ}$  .

4. A spark plug according to claim 1, wherein said columnar portion has an axial length in a range of 0.3 mm to 1.0 mm.

5. A spark plug according to claim 1, wherein a distance  
5 between the tip end of the columnar portion of the center electrode and the projecting end of the insulator is in a range of 1.0 mm to 6.0 mm.

6. A spark plug according to claim 1, wherein said columnar  
10 portion and said conical portion of the center electrode are welded by means of laser.

7. A spark plug according to claim 1, further comprising  
a mount screw formed to an outer peripheral portion of the main  
15 metal fitting.

8. A spark plug according to claim 1, wherein said grounding electrode has a single-pole structure.

20 9. A spark plug according to claim 1, wherein said columnar portion is formed of iridium alloy.

10. A spark plug according to claim 1, wherein said conical  
portion has an outer shape prescribed by a circle formed by  
25 an intersecting line between a circumferential surface of the columnar portion or a surface which is formed by extending the

circumferential surface towards the conical portion side and a conical surface of the conical portion; a circle on a bottom surface side of the conical portion; and a surface not projecting over a conical surface connecting said tow circles.

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